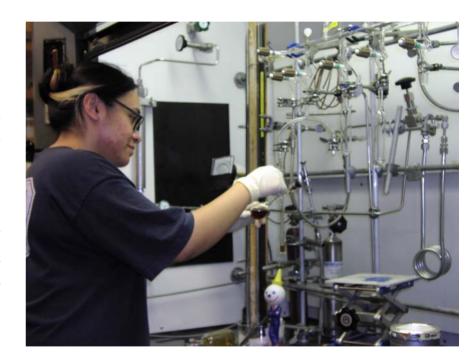
Peter C. Ford University of California, Santa Barbara CHE -0095144

Nitric oxide (NO) a key bioregulator of blood pressure is formed in the endothelium cells that line the arteries. Others have postulated that NO reacts with hemoglobin (Hb) to give SNO-Hb and that the latter is the reservoir for NO in the cardiovascular system. While SNO-Hb has been detected in red blood cells exposed to NO, the actual pathways by which it is formed are unknown.

A recent investigation by UCSB Ph.D. candidate Bernadette Fernandez has demonstrated that the ferric ion form of Hb (met-Hb) is readily reduced by NO in a reaction catalyzed by nitrite ion (NO_2 -). The likely catalysis mechanism would lead to formation of the strong nitrosating agent N_2O_3 at a location near the cys- β 93 where SNO-Hb carries NO. This provides a hypothesis for SNO-Hb formation as illustrated. Ms. Fernandez has determined the rates by which NO reduces mHb and is probing this and related systems for the formation of nitrosylated proteins.



obing this and related systems for the ed proteins.

NO

$$NO_2^-$$

Hb-O₂ + NO \longrightarrow met-Hb \longrightarrow met-Hb(NO) \longrightarrow (Hb + N₂O₃) \longrightarrow SNO-Hb

 $NO_3^ NO_3^-$